

WHAT IS CLAIMED IS:

1. An electrophoretic display which comprises more than one layer of display cells filled with electrophoretic fluids.
2. The display of Claim 1 wherein said filled display cells are sealed with a polymeric sealing layer.
3. The display of Claim 2 wherein said display cells are separated by partition walls.
4. The display of Claim 3 wherein said polymeric sealing layer encloses the electrophoretic fluid within each cell and sealingly adheres to the surface of the partition walls of said cells.
5. The display of Claim 4 wherein said cells are partially filled.
6. The display of Claim 2 wherein said polymeric sealing layer is in contact with the top surface of the electrophoretic fluid.
7. The display of Claim 1 wherein said display cells are the partition type display cells.
8. The display of Claim 1 wherein said display cells are the microgroove or microchannel type display cells.
9. The display of Claim 1 wherein said display cells are microcapsules having a cell size ranging from about 10 to about 200 μm .
10. The display of Claim 9 wherein said display cells are microcapsules having a cell size ranging from about 30 to about 120 μm .
11. The display of Claim 1 wherein the more than one layer of display cells are sandwiched between two conductor films and the shortest distance between the two conductor films is in the range of about 15 to about 200 μm .
12. The display of Claim 11 wherein the more than one layer of display cells are sandwiched between two conductor films and the shortest distance between the two conductor films is in the range of about 20 to about 50 μm .

13. The display of Claim 1 wherein each layer of display cells has a thickness in the range of about 10 to about 100 μm .
14. The display of Claim 13 wherein each layer of display cells has a thickness in the range of about 12 to about 30 μm .
15. The display of Claim 1 wherein said display cells are filled with electrophoretic fluids of different colors, optical densities, switching speeds or magnetic properties.
16. The display of Claim 1 wherein one of said layers comprises display cells having shape, dimension or ratio of opening to total area different from those of display cells of another layer.
17. The display of Claim 1 wherein said cells are separated by inactive partition areas and sealingly enclosed by a polymeric sealing layer.
18. The display of Claim 17 wherein said inactive partition areas of a layer are positioned with registration to active cell areas of another layer in a staggered fashion.
19. The display of Claim 18 which comprises one top layer of display cells and one bottom layer of display cells.
20. The display of Claim 19 comprising display cells which are filled with an electrophoretic fluid comprising white pigment particles or pigment-containing microparticles dispersed in a black solvent or solvent mixture.
21. The display of Claim 19 wherein the top layer on the viewing side comprises red, green or blue cells which are filled with electrophoretic display fluids comprising white pigment particles or pigment-containing microparticles dispersed in red, green or blue solvents or solvent mixture, respectively.
22. The display of Claim 19 which is a full color or multi-color electrophoretic display wherein the bottom layer on the non-viewing side comprises black cells which are filled with an electrophoretic fluid comprising white pigment particles or pigment-containing microparticles dispersed in a black solvent or solvent mixture.

23. The display of Claim 19 which is a full color or multi-color electrophoretic display wherein the bottom layer on the non-viewing side comprises red, green, blue and black cells which are filled with electrophoretic fluids comprising white pigment particles or pigment-containing microparticles dispersed in red, green, blue and black solvent or solvent mixture, respectively and the top layer comprises red, green and blue cells which are filled with electrophoretic fluids comprising white pigment particles or pigment-containing microparticles dispersed in red, green and blue solvent or solvent mixture.

24. The display of Claim 23 wherein the colored cells and inactive partition areas of the two layers are arranged in a staggered fashion that the red, green, blue and partition areas of the top layer are registered to the red, green, blue and black cells of the bottom layer, respectively.

25. An electromagnetophoretic display which comprises one top layer of display cells and one bottom layer comprising display cells which are filled with an electromagnetophoretic fluid comprising a mixture of black magnetic particles and white non-magnetic particles dispersed in a colorless clear solvent or solvent.

26. The display of Claim 25 wherein the top layer comprises red, green and blue cells which are filled with electrophoretic fluids comprising white particles dispersed in red, green and blue solvents, respectively.

27. The display of Claim 25 wherein the top layer comprises display cells which are filled with an electrophoretic fluid comprising a mixture of white and black particles dispersed in a colorless clear solvent or solvent mixture.

28. A process for the manufacture of an electrophoretic display of more than one layer of display cells, which process comprises:

- a) preparing separately two layers of display cells, each having a conductor film side and a sealing side; and
- b) laminating one of the layers over the other optionally with an adhesive layer.

29. The process of Claim 28 wherein step (a) is carried out by forming display cells over a conductor film, filling said cells with an electrophoretic fluid and sealing the filled cells with a polymeric sealing layer.

30. The process of Claim 29 wherein said cells are prepared by microembossing.
31. The process of Claim 29 wherein said cells are prepared by photolithography or pre-punched holes.
32. The process of Claim 29 wherein said cells of the two layers are prepared by different methods.
33. The process of Claim 32 wherein said methods are independently microembossing, photolithography or pre-punched holes.
34. The process of Claim 28 wherein step (b) is carried out by laminating one layer of the display cells over the other layer with the sealing sides of the two layers facing each other.
35. A process for the preparation of an electrophoretic display of more than one layer of display cells, which process comprises:
- a) forming a first layer of display cells, said first layer having a conductor film side and a sealing side;
 - b) forming a second layer of display cells on a transfer release layer, said second layer having a transfer release layer side and a sealing side;
 - c) laminating said second layer over said first layer and removing said transfer release layer;
 - d) optionally forming separately additional layers of display cells on transfer release layers; each layer having a transfer release layer side and a sealing side;
 - e) laminating each of said additional layers over a stack of layers already formed and removing the transfer release layer; and
 - f) laminating a second conductor film over said stack.
36. The process of Claim 35 wherein step (a) is carried out by forming display cells on a conductor film, filling said cells with an electrophoretic fluid and sealing the filled cells with a polymeric sealing layer.
37. The process of Claim 36 wherein said cells are prepared by microembossing.

38. The process of Claim 36 wherein said cells are prepared by photolithography or pre-punched holes.

39. The process of Claim 35 wherein steps (b) and (d) are carried out by forming display cells on said transfer release layer, filling said cells with an electrophoretic fluid and sealing the filled cells with a polymeric sealing layer.

40. The process of Claim 39 wherein said cells are prepared by microembossing.

41. The process of Claim 39 wherein said cells are prepared by photolithography or pre-punched holes.

42. The process of Claim 35 wherein the layers of display cells are prepared by different methods.

43. The process of Claim 42 wherein said methods are independently microembossing, photolithography or pre-punched holes.

44. The process of Claim 35 wherein step (c) is carried out by laminating said second layer over said first layer with the sealing sides of the two layers facing each other, followed by removing said transfer release layer.

45. The process of Claim 35 wherein step (e) is carried out by laminating said additional layer over a stack of layers already formed, with the sealing side of the additional layer facing the stack, followed by removing said transfer release layer.

46. The process of Claim 35 wherein step (f) is carried out by lamination with or without an adhesive layer.